

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Re: Application of: Ivo AGNER  
Serial No.: 10/562,260  
Filed: February 5, 2007  
For: PUMP  
Art Unit: 3748  
Examiner: Theresa Trieu

Mail Stop: APPEAL BRIEF - PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

October 25, 2010

**SUPPLEMENTAL APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37**

Sir:

Appellant submits this supplemental brief in response to the Notification of Non-Compliance dated October 5, 2010. The previously submitted Appeal Brief dated September 27, 2010, has been amended to remove Appendix D. No other amendments have been made to the previously submitted Appeal Brief. The Appellant submits this brief for the consideration of the Board of Patent Appeals and Interferences (the Board) in support of their appeal of the Final Rejection dated March 29, 2009 and the Advisory Action dated June 25, 2010. The statutory fee of \$540.00 was previously submitted with the Appeal Brief filed on September 27, 2010 therefore, no fee is believed to be due at this time. If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

### 1. REAL PARTY IN INTEREST

The real party in interest is LUK FAHRZEUG-HYDRAULIK GMBH & CO. KG, a German corporation having a place of business in Bad Homburg, Germany, and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to LUK FAHRZEUG-HYDRAULIK GMBH & CO. KG by an assignment originating from inventor Ivo Agner. The most recent conveyance was recorded on February 5, 2007 at reel 018869, frame 0467.

### 2. RELATED APPEALS AND INTERFERENCES

Appellant, his legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

### 3. STATUS OF CLAIMS

Claims 5 to 15 are pending in the application. Claims 1 to 4 are canceled. Claims 5 to 7, 9, 11, 14 and 15 were rejected in the Final Office Action dated March 29, 2010. Claims 8, 10, 12 and 13 were objected to and are allowable if rewritten in independent form.

The rejections to claims 5 to 7, 9, 11, 14 and 15 thus are appealed. A copy of appealed (and objected to) claims 5 to 15 is attached hereto as Appendix A.

### 4. STATUS OF AMENDMENTS

In response to the Final Office Action dated March 29, 2010 and the Advisory Action dated June 25, 2010, no amendments have been made.

A Notice of Appeal was filed on July 27, 2010.

## 5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 5 recites a pump comprising: a double-stroke delivery contour (for example, Specification page 4, paragraph [0017] line 1 to page 5, line 2; for example, delivery contour 1 in Figure 2), the delivery contour having at least one rise zone (for example, Specification page 5, paragraph [0017] lines 2 to 3; for example, delivery contour 1, angular point 5 and angular point 9 in Figure 2), at least one large circle region (for example, Specification page 5, paragraph [0017] lines 6 to 7; for example, delivery contour 1, angular point 9 and angular point 22 in Figure 2), at least one fall zone (for example, Specification page 5, paragraph [0017] lines 10 to 12; for example, delivery contour 1, angular point 22 and angular point 15 in Figure 2), and at least one small circle region (for example, Specification page 4, paragraph [0017] line 1 to page 5, line 2; for example, delivery contour 1 and angular point 3 in Figure 2), and, a rotor within the delivery contour region (for example, Specification page 1, paragraph [0004] line 1 to page 2, line 2; for example, rotor 74 in Figure 7), the rotor having radially displaceable vanes in radial rotor slots (for example, Specification page 1, paragraph [0004] line 1 to page 2, line 2; for example, vanes 70 and rotor slots 72 in Figure 7), an angular range of the large circle region of the delivery contour being lengthened region (for example, Specification page 5, paragraph [0017] lines 8 to 10; for example, delivery contour 1, angular point 9 and angular point 22 in Figure 2), wherein the large circle region is greater than the fall zone (for example, Specification page 5, paragraph [0017] lines 7 to 12; for example, angular point 9, angular point 22 and angular point 15 in Figure 2).

Dependent claim 7 recites the pump as recited in claim 5 wherein the pump is a 10 vane pump and the large circle region of the delivery contour on one side is between 48 and 51 degrees (for example, Specification page 2, paragraph [0005], lines 1 to 6).

Dependent claim 9 recites the pump as recited in claim 5 wherein the pump is a 12 vane pump and the large circle region of the delivery contour on one side is between 51 and 55 degrees (for example, Specification page 2, paragraph [0005], lines 1 to 6).

## 6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 5, 6, 11 and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 2,731,919 to Prendergast (hereinafter "Prendergast"). Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prendergast in view of legal precedent. Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prendergast in view of legal precedent. Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prendergast in view of design choice. Claims 8, 10 and 12 to 13 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

## 7. ARGUMENTS

### A. 35 U.S.C. §102(b) Rejections

Claims 5, 6, 11 and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by Prendergast.

Prendergast discloses a pump or motor comprising "a rotor 4 which is surrounded by a stator 5. The rotor is circular in form and is provided around its outer periphery with an even number (sixteen) of equidistant radial slots in each of which a vane 6 is free to slide." (Col. 2, lines 9 to 13).

#### Claim 5 Argued Separately

Claim 5 recites "[a] pump comprising:

a double-stroke delivery contour, the delivery contour having at least one rise zone, at least one large circle region, at least one fall zone, and at least one small circle region, and,  
a rotor within the delivery contour, the rotor having radially displaceable vanes in radial rotor slots,

an angular range of the large circle region of the delivery contour being lengthened, wherein the large circle region is greater than the fall zone."

Prendergast fails to teach or show "an angular range of the large circle region of the delivery contour being lengthened, wherein the large circle region is greater than the fall zone,"

as required by claim 5. The Office Action cites to annotated Fig. 5 on page 3 of the Office Action asserting it is inherent that "the large circle region of the delivery contour is greater than the fall zone." However, this is not true. The annotated Fig. 5 of Prendergast is inaccurate and is not suitable to deduce the displacement contours. The annotated Fig. 5 of Prendergast contradicts what is shown in Fig. 4 of Prendergast. However, Fig. 5 of Prendergast shows the bore of the stator 5 "profiled as previously described in Fig. 4," and therefore should be consistent with what is shown in Fig. 4. (See Col. 3, lines 57 to 58). Fig. 4 of Prendergast clearly defines the displacement contour. Prendergast teaches "two equal diametrically disposed arcs of major radius, two equal arcs of minor radius...and four equal joining curves each joining adjacent major and minor arcs." (Col. 1, lines 28 to 32). The two minor radius areas, "small circle region", are shown as 5a in Fig. 4 of Prendergast, each equaling 45°. (See Col. 2, lines 35 to 39). The "two equal diametrically disposed arcs of major radius," "large circle region," in Prendergast are represented by 5b in Fig. 4 and also equal 45°. (See Col. 2, lines 39 to 43). Fig. 4 shows that the remaining contour areas 5c, thus the rise zone and the fall zones, are also 45°. (See also Col. 2, line 53 to 58). Therefore there is no reason for a different interpretation by the Examiner regarding the displacement contour of Prendergast in Fig. 5 as identical references to the displacement contour of Fig. 4 are already provided. It is respectfully submitted, that the drawings by the Examiner are incorrect. The fall zone in Fig. 4 of Prendergast is 45° (angular distance between 2 sets of adjacent vanes). (See Col. 2, lines 56 to 58). Furthermore, the small circle region as drawn by the Examiner is only half the size of the actual small circle region of Prendergast shown in Fig. 4 which reaches to the beginning of the next rise zone and equals 45°. Therefore the difference in size between the fall zone and the large circle region are not accurate based on the lines provided by the Examiner. However, Fig. 4 clearly shows the fall zone being 45° and the large circle region being 45°. Therefore, Prendergast fails to teach or show "the large circle region is greater than the fall zone," as recited in claim 5.

Furthermore, it is not inherent that the large circle zone is larger than the fall zone as asserted prior by the Examiner. See MPEP 2112. In fact, Prendergast Fig. 4 specifically teaches away from the present invention and makes clear that a larger circle region greater than the fall zone need not be the case, and thus is not inherent. Therefore, Prendergast does not meet all of the limitations of claim 5 and cannot render claim 5 unpatentable as anticipated by Prendergast.

Reversal of the rejections of independent claim 5 and claims 6, 11 and 15, which are directly dependent on claim 5, under 35 U.S.C. §102(b) is respectfully requested.

**B. 35 U.S.C. §103(a) Rejections**

Claim 7 Argued Separately

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prendergast in view of legal precedent.

Prendergast is discussed above.

In addition to the arguments with respect to claim 5, it would not have been obvious to one of skill in the art to modify Prendergast to include “wherein the pump is a 10 vane pump and the large circle region of the delivery contour on one side is between 48 and 51 degrees” as recited in claim 7. The value provided for the large circle in Prendergast is 45°. The Office Action asserts “where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.” The range established in claim 7 is not a workable range found by routine experimentation. The criticality of the extension of the large circle range of claim 7 is explained in the specification: it shortens the compression region from the prior art and lengthens the pressure equalization process. (Specification, page 2, paragraph [0005], lines 6 to 9). Nothing in Prendergast even suggests the optimization of the large circle range. MPEP 2144.05 II A.

For this additional reason, reversal of the rejection to claim 7 under 35 U.S.C. §103(a) is respectfully requested.

Claim 9 Argued Separately

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prendergast in view of legal precedent.

Prendergast is discussed above.

In addition to the arguments with respect to claim 5, it would not have been obvious to one of skill in the art to modify Prendergast to include “wherein the pump is a 12 vane pump and the large circle region of the delivery contour on one side is between 51 and 55 degrees” as recited in claim 9. Prendergast fails to teach such a range. The value provided for the large

circle in Prendergast is 45°. The Office Action asserts “the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.” The range established in claim 9 is not a workable range found by routine experimentation. The criticality of the extension of the large circle range in claim 9 is explained in the specification: it shortens the compression region from prior art and lengthens the pressure equalization process. (Specification, page 2, paragraph [0005], lines 6 to 9). Nothing in Prendergast even suggests the optimization of the large circle range. MPEP 2144.05 II A.

For this additional reason, reversal of the rejection to claim 9 under 35 U.S.C. §103(a) is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

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**APPENDIX A:**

PENDING CLAIMS 5 to 15 OF U.S.  
APPLICATION SERIAL NO. 10/562,260

Claim 5 (previously presented): A pump comprising:

a double-stroke delivery contour, the delivery contour having at least one rise zone, at least one large circle region, at least one fall zone, and at least one small circle region, and, a rotor within the delivery contour, the rotor having radially displaceable vanes in radial rotor slots,

an angular range of the large circle region of the delivery contour being lengthened, wherein the large circle region is greater than the fall zone.

Claim 6 (previously presented): The pump as recited in claim 5 wherein the pump is a transmission pump.

Claim 7 (previously presented): The pump as recited in claim 5 wherein the pump is a 10 vane pump and the large circle region of the delivery contour on one side is between 48 and 51 degrees.

Claim 8 (previously presented): The pump as recited in claim 7 wherein the large circle region on one side extends 49 degrees.

Claim 9 (previously presented): The pump as recited in claim 5 wherein the pump is a 12 vane pump and the large circle region of the delivery contour on one side is between 51 and 55 degrees.

Claim 10 (previously presented): The pump as recited in claim 9 wherein the large circle region on one side extends 52 degrees.

Claim 11 (previously presented): The pump as recited in claim 5 wherein a length of a suction region is not lengthened.

Claim 12 (previously presented): The pump as recited in claim 5 wherein the pump is a 12 vane pump, and turning points of a displacement contour function in a direction from a suction region to a pressure region are spaced apart by approximately 105 degrees.

Claim 13 (previously presented): The pump as recited in claim 5 wherein the pump is a 10 vane pump, and turning points of a displacement contour function in a direction from a pressure region to a suction region are spaced apart by approximately 90 degrees.

Claim 14 (previously presented): The pump as recited in claim 5 wherein the pump is a 10 vane pump, turning points of a displacement contour function being shifted by approximately  $3^{\circ}$  in direction of rotation.

Claim 15 (previously presented): The pump as recited in claim 5 wherein turning points of a displacement contour function are not spaced evenly about the delivery contour.

**APPENDIX B**

Evidence Appendix under 37 C.F.R. §41.37(c)(ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

**APPENDIX C**

Related proceedings appendix under 37 C.F.R. §41.37(c)(x):

As stated in "2. RELATED APPEALS AND INTERFERENCES" of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.